

AFRL developing technology to help military law enforcement see through walls

by Fran Crumb, Information Directorate

ROME, N.Y. — Engineers at the Air Force Research Laboratory's Information Directorate are pursuing technologies that will allow military peacekeepers and civilian law enforcement personnel to monitor individuals concealed in buildings.

The directorate recently awarded a \$2,993,158 contract to Time Domain Corp. of Huntsville, Ala., to produce a portable device capable of detecting human motion behind a wall. The 12-month contract is funded by the Army Night Vision Laboratory at Fort Belvoir, Va., in support of its Enhanced Through-the-Wall Surveillance for Military Operations in Urbanized Terrain (MOUT) Program.

"We will be getting a portable device weighing about eight pounds," said Bernard J. Clarke, program manager in the directorate's Information and Intelligence Exploitation Division. "The device, about 14-by-22-by-6 inches and worn on the arm, will detect motion on the other side of a wall using extremely low-power radar."

"Our experience in developing radar technology led to this cooperative work with the Army," Clarke said. "This specific technology detects a 'Doppler shift' in the returned signal to locate movement. If people are not moving, it will not detect them."

The portable size of the unit will allow for use by special forces. It is envisioned for use in urban areas, where military personnel will be tasked to enter buildings for searching and clearing. The technology also has major potential applications for civilian law enforcement agencies, where SWAT or hostage-rescue teams need to determine if someone is on the other side of a wall.

The directorate is also pursuing several other technology/phenomenology areas for sensing, with funding from the National Institute of Justice, a division of the Department of Justice.

"We are looking at three or four additional technologies for this purpose," said Clarke. "The technologies we are using to see through walls are the same as we are using for detecting concealed weapons."

Through-the-Wall Surveillance (TWS) research uses a variety of existing sensor technologies and then combines, or fuses, specific data from each for a better image.

The directorate's TWS technical program has included a variety of radar frequencies, including ground-penetrating, millimeter waves and FM radar. Also considered were applications of acoustic signals and image processing.

Time Domain's portable sensor, scheduled for delivery by next fall, will be capable of detecting the movement of a human body up to thirty feet behind a standard interior wall. The thickness and composition of exterior walls will degrade that capability. @